DOCUMENT RESUME

ED 027 288 SP 002 447

By-Davis, O. L., Jr.; Smoot, B. R.

Effects on the Verbal Teaching Behaviors of Beginning Secondary Teacher Candidates' Participation in a Program of Laboratory Teaching.

Texas Univ., Austin. Coll. of Education.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Pub Date Feb 69
Note-11p.; A paper delivered at the convention of the American Educational Research Assn., Los Angeles, California Feb. 7, 1969.
EDRS Price MF-$0.25 HC-$0.65
Descriptors-Behavior Change, Educational Experiments, Feedback, Laboratory Schools, Lesson Observation Criteria, *Microteaching, Preservice Education, Secondary School Teachers, *Teacher Behavior, Verbal Ability
Identifiers-Laboratory Observation Schedule and Reco, LOScAR

One hundred and forty secondary teacher candidates who were enrolled in a first course in teaching were the subjects of a seven-week study to determine the effects of microteaching in a Teaching Laboratory (TL) on verbal behaviors. All students taught a 10-minute pretest prior to the start of the study and then were divided into two groups. Group A students (85) taught five- to eight-minute TL lessons with feedback and subsequent reteach lessons in two cycles (emphasizing clarification of instructional objectives and interaction). Group B students (55) had no direct teaching experience. At the end of the seven-week period, all students taught a 10-minute posttest. When both sessions were measured using the Laboratory Observation Schedule and Record (LOScAR) and when data obtained were subjected to analysis of covariance, results indicated that teaching candidates' verbal behaviors can be modified in a TL. Adjusted group means showed statistically significant differences in 17 of the 22 variables of the LOScAR favoring group A. (A 16-item bibliography is included.) (SM)

ED027288

5-0249-2
PA-24

OE-BR

R&D Center for Teacher Education

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

The University of Texas at Austin

Austin Public Schools

Texas Education Agency

SP002 447

R&D

Report Series

No. 2

Effects on the Verbal Teaching Behaviors of Beginning Secondary Teacher Candidates' Participation in a Program of Laboratory Teaching

O. L. Davis, Jr.

B. R. Smoot

EFFECTS ON THE VERBAL TEACHING BEHAVIORS OF BEGINNING SECONDARY TEACHER CANDIDATES' PARTICIPATION IN A PROGRAM OF LABORATORY TEACHING

By

O. L. Davis Jr.
The University of Texas at Austin

B. R. Smoot
The University of Arkansas

The Research and Development Center
for Teacher Education
The University of Texas at Austin

This study was supported in part by the U.S. Office of Education, Contract OE 6-10-108, Research and Development Center for Teacher Education.

This paper was delivered at the convention of the American Educational Research Association, Los Angeles, California, February 7, 1969.

Micro-teaching was developed at Stanford as one means of inducting candidates gradually into the reality of teaching (Allen, 1966), and has received widespread attention in recent years. It has been described "as a teaching situation which is scaled down in terms of time and numbers of students" (Allen and Clark, 1967). Typically, micro-teaching lessons or episodes vary from five to 20 minutes in length and are taught to pupils in small groups (three to ten individuals). After teaching a micro-lesson, teachers receive immediate feedback. One element in the standard Stanford program, in addition, has been a recording (usually video-taped) of the teacher at work; this record constitutes all or a portion of the feedback. The basic procedure of micro-teaching has been adopted into various programs and adapted in others (e.g., Amidon & Rosenshine, 1968; Goodkind, 1968). One adaptation is represented by the Teaching Laboratory developed at The University of Texas at Austin.

Based on the micro-teaching rationale, the Teaching Laboratory (TL) is an integral component of the introductory course in teaching taken by undergraduate secondary teacher candidates. Laboratory teaching employs short lessons (five to ten minutes in length) taught to peers. As "pupils," peers are not instructed to "role play" secondary pupils, but rather to be themselves. This basic modification of an asserted principle of micro-teaching was imperative in the situation in order that the TL component might be incorporated into the program. TL lessons are audio-recorded, and candidates' individual tapes are available in a listening facility as one means of feedback. Other standard feedback procedures include pupil reaction forms, completed after each lesson, and instructor comments. Central to the TL rationale and practice is a set of instructional modules or pedagogic tasks (e.g., clarifying instructional

objectives, questioning, explaining). Usual procedure involves study, discussion, demonstration lesson and candidates' TL practice with each task during a two-week teach-reteach cycle. During several semesters, the TL component has made possible candidates' teaching 10-13 laboratory lessons and attending to five or six tasks.

The general popularity of micro-teaching seems not to have attracted concomitant research attention. However, several studies completed at Stanford (Allen and Fortune, 1966; Fortune, 1966; Cooper, 1966) suggest its validity. This research reveals that graduate teacher candidates were rated significantly higher by pupils as a function of micro-teaching experience. Candidates' ratings by their pupils during the internship were also higher for those who had micro-teaching than for interns who had not been in the micro-teaching program (Aubertine, 1964). While important, these studies do not indicate which, if any, specific teaching behaviors of candidates were altered through these procedures. Such ethical questions may be investigated only through the use of observation instruments by which discrete teaching behaviors may be classified. The present study was designed to yield direct evidence of differences in undergraduate teacher candidates' verbal teaching behaviors associated with their participation in a program of Laboratory Teaching. In addition, it is one study in a program of research and development activities directed toward empirical examination and expansion of laboratory teaching in pre-service teacher education.

Procedure

Subjects were 140 secondary teacher candidates enrolled in six sections of the first course in teaching in the professional sequence at The University of Texas at Austin. Ss in Group A (N=85) were enrolled in three sections which incorporated the TL component as a prominent feature of the course. Ss in Group B (N=55) were enrolled in three sections which did not incorporate the TL component.

At the beginning of the 1968 spring semester, all Ss taught a ten-minute "pre-test" under TL conditions. They prepared this laboratory lesson on the instruction, "On (date), you will teach a ten-minute lesson to a small group of your classmates. Teach the best that you know how. You may select any topic in your teaching field that is appropriate to teach at the secondary school level." During the seven-week experimental period that followed the "pre-test," Ss in Group A engaged in two cycles of TL activity. The two TL tasks involved were 1) clarifying instructional objectives and 2) interacting. In each cycle, Ss taught a TL lesson, received pupil, instructor and audio-tape recorded feedback, then taught a reteach lesson. These TL lessons were from five to eight minutes in length. Ss in Group B read and discussed issues and problems in teaching in regular class sessions. Some of the same topics discussed were those also treated in the Group A sections. Group B Ss had no direct experience in teaching. Following the experimental period, all Ss taught a ten-minute "post-test."

The criterion measure was the Laboratory Observation Schedule and Record (LOScAR). This instrument, developed by Smoot (1968 a), is a modification of OScAR 5V (Medley and others, 1968). The LOScAR yields 13 category scores and nine ratio scores. Inter-observer reliability was calculated to be .76. Data obtained from live observations of the pre- and post-teaches were subjected to analysis of covariance procedures employing the CDC 6600 computer program COVARY (Veldman, 1967, p. 16).

Results and Discussion

Adjusted group means for Groups A and B on both criterion TL lessons and the resultant F-ratio for each of the 22 variables are presented in Table I. Statistically significant differences between the groups were obtained for 17 of the variables. Groups did not differ in the percentage of utterances that were categorized as Problem Structuring and Convergent Questions, nor in the

Table 1

Adjusted Means of LOScAR Category and Ratio Scores and ANCOVA Results

	Adjusted Means			
	Group A	Group B	F	P
Category Scores				
Problem Structuring (PBST)	1.01	.60	<1	
Divergent Questions (DVG)	7.36	3.11	28.67	.0000
Probing 1 (PB1)	2.45	1.16	6.63	.0107
Probing 2 (PB2)	3.13	1.47	10.48	.0019
Convergent Questions (CVG)	1.26	1.23	<1	
Informing (INFO)	39.81	73.86	83.86	.0000
Pupil Questions (PQ)	3.36	1.59	6.69	.0104
Pupil Statements (PST)	3.20	.99	7.86	.0059
Pupil Responses (PRS)	18.67	4.10	97.36	.0000
Considering-Supporting (CNSUP)	4.17	2.28	9.47	.0029
Teacher Repeats Pupil Answer (TRPA)*				
Teacher Clarifies (TCLA)	11.41	4.69	25.01	.0000
Procedural-Nonsubstantive (PRNS)	1.68	3.29	7.56	.0068
Ratio Scores				
Nonsubstantive/Substantive	.02	.03	7.53	.0069
Teacher Solicitation/Total Teacher Talk	.14	.07	30.34	.0000
Teacher Talk/Total Talk	.75	.93	95.71	.0000
Teacher Solicitation/Teacher Informing	.31	.10	49.70	.0000
Pupil Iniation/Total Pupil Talk	.24	.24	<1	
Indirect/Direct	.45	.17	69.07	.0000
Divergent/Convergent	.92	.61	12.66	.001
Probing/Total Teacher Talk	.06	.03	11.31	.0014
PB1/PB2	.45	.51	<1	

*Difference among group slopes due only to chance

proportions of Probe 1 Questions to all probing questions or of pupil initiated utterances to all pupil talk. On only two of the variables, INFO and the ratio of teacher talk to total utterances, did the Group B candidates scores exceed those of the Group A students; this result may be interpreted as "favoring" Group A. The number of significant differences thus favoring Group A (17 of 22) was itself significant (Sakoda, Cohen, and Beall, 1954).

That teacher candidates' verbal teaching behaviors can be modified in a Teaching Laboratory is clearly demonstrated by these findings. The observed changed behaviors are the more significant when several factors are highlighted.

The length of time for the experimental treatment was short, less than half a semester. To alter teaching behaviors is commonly assumed to require a much longer period of time. Changes occurred, also, as a consequence of only two specific instructional tasks (involving two laboratory cycles). In each cycle, candidates taught only two short (five to eight minute) lessons. Additionally, candidates in the TL received only minimal feedback. They listened to audio tapes of their lessons without a structured listening guide and without personal supervision. To be important to them, this type of feedback would have to have been perceived, analyzed and interpreted by them personally. Ss were beginning teacher candidates; and, having only little experience and it in a TL, their analytic and interpretive ability undoubtedly must be assumed to have been minimal. The extent to which the feedback was helpful may be assumed related to the specificity and reality of the TL tasks.

Not only were the verbal teaching behaviors of secondary candidates changed, their variety increased. At the outset of the experiment, Ss in both groups employed in their teaching a restricted group of teaching behaviors. The teachers informed (lectured or "talked to") a great deal, their questions were mostly convergent, their pupils initiated and responded little,

and the teachers clarified little. By the end of this experiment, Ss in Group A (TL component) asked fewer convergent and more divergent and probing questions. They also informed less, clarified more and uttered fewer procedural-nonsubstantive units. Their pupils initiated and responded more and were supported more than were pupils in Group B. In general, candidates with TL experience seem to have developed an expanded repertoire of teaching behaviors. This awareness of and skill in a variety of verbal teaching behaviors should increase the probability of candidates' deriving maximum benefit from student teaching. As candidates drew on these behaviors in specific teaching tasks, they exhibited a mosaic of teaching which was illustrative of greater behavioral flexibility and one probably conducive to increased pupil learning (Amidon and Flanders, 1961; La Shier, 1965).

These results, based on a portion of the first semester of a systematic study of teaching, point to the possibility of increased behavioral changes throughout the teacher education program. This possibility seems destined to be abortive, however, unless candidates continue to be involved in increased specificity and realism in teaching (Davis and Gregory, in press). Additional TL-type components, in special methods courses and in student teaching, should have a productive yield.

Caution is suggested in interpreting and generalizing these results. That instructors of the six class sections were different individuals may have contributed in unknown ways to the results. Also, the well-known Hawthorne effect may have been operative. Both the classes and the students may have possessed important unspecified differences. These limitations seem common to much educational research, particularly that in teacher education, and consequently should temper rather than enfeeble interpretation. Another, perhaps more important variable and specific to the TL, is the use of peers as pupils. Their influence on their colleagues' behaviors may have been considerable; on the

other hand, it may have been negligible. An empirical study of the effects on teacher candidates' verbal behaviors of peers and "real pupils," long overdue, is now underway as a part of the continuing research program.

Clearly, the evidence presented here demonstrates the power of a Teaching Laboratory and its integral delineation of specific teaching tasks. Secondary teacher candidates who experienced the TL in the initial segment of their teacher education program were seen to have exhibited not only changed behaviors, but an increased variety in their verbal teaching as well. Subsequent research will inquire into the persistence and stability of these changed behaviors.

References

Allen, Dwight W. "A New Design for Teacher Education: The Teacher Intern Program at Stanford University." Journal of Teacher Education 17: 296-300; Fall, 1966.

Allen, Dwight W., and Clark, Richard J., Jr. "Micro teaching: Its Rationale." The High School Journal 51: 75-79; November, 1967.

Allen, Dwight W., and Fortune, J.A. "An Analysis of Micro-teaching: A New Procedure in Teacher Education." In Micro-Teaching: A Description. Stanford, California: Secondary Teacher Education Program, School of Education, Stanford University, 1966. (mimeo).

Amidon, Edmund and Flanders, Ned. "The Effects of Direct and Indirect Teacher Influence on Dependent-Prone Students Learning Geometry." Journal of Educational Psychology 52: 286-91; 1961.

Amidon, Edmund and Rosenshine, Barak. "Interaction Analysis and Micro-teaching in an Urban Teacher Education Program: A Model for Skill Development in Teaching." Paper read at the annual meeting of the American Educational Research Association, Chicago: February, 1968, 26 pp. (mimeo).

Aubertine, H.E. An Experiment in the Set Induction Process and Its Application in Teaching. Unpublished Ed.D. dissertation. Stanford, California: Stanford University, 1964. 140 pp.

Cooper, J.M., and Stroud, T. "The Stanford Summer Micro-Teaching Clinic 1966." In Micro-Teaching: A Description. Stanford, California: Secondary Teacher Education Program, School of Education, Stanford University, 1966. (mimeo).

Davis, O.L., Jr., and Gregory, Thomas B. "Laboratory Components in Teacher Education, or, Practicing What We Preach," Peabody Journal of Education, in press.

Fortune, J.A.; Cooper, J.M.; and Allen, Dwight W. "The Stanford Summer Micro-Teaching Clinic, 1965." In Micro-Teaching: A Description. Stanford, California: Secondary Teacher Education Program, School of Education, Stanford University, 1966. (mimeo).

Goodkind, Thomas B. "An Evaluation of the Effectiveness of the Micro-teaching Technique in the Training of Elementary School Teachers." Paper read at the annual meeting of the American Educational Research Association, Chicago: February, 1968, 7 pp. (mimeo).

LaShier, William Stanley, Jr. An Analysis of Certain Aspects of the Verbal Behavior of Student Teachers of Eighth Grade Students Participating in a BSCS Laboratory Block. Unpublished Ph.D. dissertation. Austin: The University of Texas, 1965. 65 pp.

Medley, Donald M., and others. Assessing the Learning Environment in the Classroom: A Manual for Users of OScAR 5-V. Princeton, New Jersey: Educational Testing Service, 1968. (mimeo).

Sakoda, James M., Burton H. Cohen, and Geoffrey Beall. "Test of Significance for a Series of Statistical Tests." Psychological Bulletin 51: 172-175; March 1954.

Smoot, B.R. The Effect of Training in a Classroom Observation System Upon the Verbal Teaching Behaviors of Secondary Teacher Candidates. Unpublished Ph.D. dissertation. Austin: The University of Texas, 1968. 120 pp. (a)

Smoot, B.R. "The Observation Schedule and Record (OScAR): A Language of Teaching." Texas Journal of Secondary Education 21: 21-28; Spring 1968. (b)

Veldman, Donald J. EDSTAT-V: Basic Statistical Computer Programs for the CDC 6600. Austin: The Research and Development Center for Teacher Education, The University of Texas at Austin, October, 1967. 18 pp. (mimeo).